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ABSTRACT

The general purpose of the occupational analysis is to provide workable, basic information dealing with the many and varied duties performed in the baking occupation. Such tasks as choosing ingredients and the actual baking process are logical primary concerns, but also explored are the safety and sanitation factors and management problems in a bakery operation. The document opens with a brief introduction followed by a job description. The bulk of the document is presented in table form. Nine duties are broken down into a number of tasks and for each task a two-page table is presented, showing on the first page: tools, equipment, materials, objects acted upon; performance knowledge (related also to decisions, cues and errors); safety--hazard; and on the second page: science; math--number systems; and communications (performance modes, examples, and skills and concepts). The duties include: sanitizing and cleaning premises and equipment; preparing and cooking various products; selecting types of ingredients; maintaining inventory and stock control; developing merchandising and salesmanship; managing operation; developing accounting and bookkeeping skills; operating store; and observing safety rules and regulations. Appended are a list of safety rules and hazards, and a glossary of baking terms. (BP)

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Occupational Analysis

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BAKER

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Instructional Materials Laboratory
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5177

AN ANALYSIS OF THE BAKING OCCUPATION

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FOREWORD

The occupational analysis project was conducted by The Instructional Materials Laboratory, Trade and Industrial Education, The Ohio State University in conjunction with the State Department of Education, Division of Vocational Education pursuant to a grant from the U.S. Office of Education.

The Occupational Analysis project was proposed and conducted to train vocational educators in the techniques of making a comprehensive occupational analysis. Instructors were selected from Agriculture, Business, Distributive, Home Economics, and Trade and Industrial Education to gain experience in developing analysis documents for sixty-one different occupations. Representatives from Business, Industry, Medicine, and Education were involved with the vocational instructors in conducting the analysis process.

The project was conducted in three phases. Phase one involved the planning and development of the project strategies. The analysis process was based on sound principles of learning and behavior. Phase two was the identification, selection and orientation of all participants. The training and workshop sessions constituted the third phase. Two-week workshops were held during which teams of vocational instructors conducted an analysis of the occupations in which they had employment experience. The instructors were assisted by both occupational consultants and subject matter specialists.

The project resulted in producing one hundred two trained vocational instructors capable of condulting and assisting in a comprehensive analysis of various occupations. Occupational analysis data were generated for sixty-one occupations. The analysis inlcuded a statement of the various tasks performed in each occupation. For each task the following items were identified: tools and equipment; procedural knowledge; safety knowledge; concepts and skills of mathematics, science and communication needed for successful performance in the occupation. The analysis data provided a basis for generating instructional materials, course outlines, student performance objectives, criterion measures, as well as identifying specific supporting skills and knowledge in the academic subject areas.

PREFACE

We have tried to cover the entire range of skills needed in baking and in managing or supervising a bakery operation. Tasks are not broken down into their simplest components, nor were all duties covered in detail; but rather those things considered most necessary to the job were stressed.

Choosing ingredients and the actual baking processes are logical primary concerns. However, a conception of safety and sanitation is also needed in a bakery operation. Knowing the problems of management (bowl costs, scheduling,) should make a more efficient employee even if he/she never aspires to a supervisory position.

ACKNOWLEDGMENT

We wish to acknowledge the valuable assistance rendered by the following subject matter specialists. They provided input to the vocational instructors in identifying related skills and concepts of each respective subject matter area and served as training assistants in the analysis process during the two-week workshops.

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JOB DESCRIPTION

A baker prepares and produces various bakery products. He/she keeps premises and all equipment clean and sanitary. He/she maintains and uses commercial bakery equipment. The baker maintains inventory and stock control, while keeping finished products in proper storage facilities. He/she practices cost accountability and overall management techniques, is involved with merchandising and salesmanship. He/she also uses bookkeeping skills in maintaining accounts and records.

Duty A Sanitizing and Cleaning Premises and Equipment

1 Clean premises (ceilings, walls, floor and windows)
2 Maintain and clean equipment
3 Properly sanitize pots, pans and utensils
4 Dispose of trash and garbage properly
5 Control rodents and insects
6 Handle and store supplies and equipment

(TASK STATEMENT) CLEAN PREMISES (CEILING, WALLS, WINDOWS, FLOOR)

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY HAZARD
Ladder Pail Detergents Sponges Rags Squeegee Platform Degreaser Steam Mop Wringer H_2O Scrubber Broom Scrapper Steel wool Scaffolds — Ceiling Steam clean — Windows Walls — Floor	Gather equipment Set up safely Clean surface Floor—sweep free of debris, scrap, then mop and dry Move mobile equipment out of area to be cleaned	Safety: Improper use of ladders and scaffolds Solutions abrasive to skin, eyes, etc. Hazards: Hot water Mop wringer (hands and fingers) Live steam Electrical outlets Equipment around cleaning area not turned off Scalding Burns Electric shock Lacerations Sores Blindness Contusions Breaks

DECISIONS	CUES	ERRORS
Decide when to clean Select tools and materials Decide how to safely set up ladders and scaffolds Decide when equipment should be moved Decide when steam cleaning is necessary	Amount of grease, dirt and dust build-up Foreign substance on floor	Unsafe climbing or reaching Wrong material and/or tools Wrong agent on type of debris Unclean tools

(TASK STATEMENT) CLEAN PREMISES (CEILING, WALLS, WINDOWS, FLOOR)

SCIENCE	MATH – NUMBER SYSTEMS
Bacteriology (microorganisms) Causes of food spoilage and disease How bacteria grows and where; what it needs to thrive Sanitization vs. cleaning Effective methods of killing or retardation	Positive rationals Use of numbers (without calculation) Counting Measurement: non-geometric Liquid and dry Temperature

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Listening	Instructions	Verbal instructions Comprehension Terminology
Reading	Instructions	Comprehension Terminology
Viewing	Seeing if area or object is clean	Detail and inference

(TASK STATEMENT) MAINTAIN AND CLEAN EQUIPMENT

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY - HAZARD
Standard tool kit Steel wool Scrappers Rubber gloves Rubber aprons Sponge Bucket Rags Oil Grease Detergents Degreaser Hot water Air compressor and gun Ovens Stainless steel work areas and surfaces Refrigerator-freezer Storage Mixers Slicers All commercial equipment	Gather materials Observe safety precautions Add appropriate materials in proper solution Use scrapper and degreaser on oven and carbon build-ups and oil and grease moving parts and motors as directed by manufacturer Defrost refrigerator and freezer	Follow manufacturer's recommendations Unplug electrical equipment Turn off and cool equipment Solutions abrasive to skin, eyes; also poisonous Hot water Bare wires Moving equipment improperly Spills and grease on floor Potential inflammable materials (gas & electric)

DECISIONS	CUES	ERRORS
Determine when to perform maintenance Determine when to clean oven Determine type of material and tool and solutions to be used Identify type of dirt to be cleaned Determine types of oil and grease to be used Determine when to use air pressure to clean	Carbon build-up Dirt and grease build-up Unusual noises Appearance of finished product Mobility of moving parts Ease of reaching dirt Build-up of frost and ice	Allowing build-up of dirt, grime and carbon Disregarding maintenance directions of manufacturer Disregarding manufacturer's recommended use of materials Wrong use of cleaning equipment

(TASK STATEMENT) MAINTAIN AND CLEAN EQUIPMENT

SCIENCE	MATH - NUMBER SYSTEMS
Bacteriology (microorganisms) Causes of food spoilage and disease How bacteria grows and where; what it needs to thrive Sanitization vs. cleaning Effective methods of killing or retardation	Positive rationals Use of numbers (without calculation) Counting Measurement: non-geometric Temperature Liquid and dry

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Listening	Instructions	Verbal instructions Comprehension Terminology
Reading	Instructions	Comprehension Terminology
Viewing	Seeing if area or object is clean	Detail and inference

(TASK STATEMENT) CLEAN AND SANITIZE POTS, PANS AND UTENSILS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY — HAZARD
Dishwasher Pot sink Pot washer Detergent Water Steel wool Scouring pads Rinse agent Towels Ladles Spoons Spatulas Cutters Pots Pans Sheets Screens Knives Forks Peels Sticks	Load utensils in dishwasher according to manufacturer's instructions Air dry Soak pots and pans and wash (pot sink) Scour Rinse Sanitize	Hot water Hot pans Sharp instruments Abrasive materials Improper heavy lifting techniques Moisture on floor in cleaning area
DECISIONS	**CUES**	**ERRORS**
Determine type of machine insert and load limit Choose method used to clean	Type of dirt build-up	Overload Toweling Waterspots Too heavy build-up of pots, pans and utensils

(TASK STATEMENT) CLEAN AND SANITIZE POTS, PANS AND UTENSILS

SCIENCE	MATH – NUMBER SYSTEMS
Bacteriology (microorganisms) Causes of food spoilage and disease How bacteria grows and where; what it needs to thrive Sanitization vs. cleaning Effective methods of killing or retardation Temperature and time needed for sterilization	Positive rationals Use of numbers (without calculation) Counting Measurement: non-geometric Temperature Liquid and dry

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Listening	Instructions	Verbal instructions Comprehension Terminology
Reading	Instructions	Comprehension Terminology
Viewing	Seeing if are or object is clean	Detail and inference

(TASK STATEMENT) DISPOSE OF TRASH AND GARBAGE PROPERLY

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Trash can and cover Garbage disposal Outside dumpster Trash bags Compactor Dollies Cart	Choose type of container Dispose all cartons - cardboards - cans Dispose food waste in covered containers Move to covered area outside away from building Keep area around outside collection area clean	Broken glass Caustic material Slippage Improper lifting of heavy loads Sharp objects Fire Dough pick up of odor Contamination
DECISIONS	**CUES**	**ERRORS**
Identify size and type Determine health or safety hazard Discriminate between what can/cannot be handled by garbage disposal	Wet or dry Odor	Improper storage Improper use of disposal Uncovered containers Spillage when dumping

(TASK STATEMENT) DISPOSE OF TRASH AND GARBAGE PROPERLY

SCIENCE	MATH – NUMBER SYSTEMS
Bacteriology (microogranisms) Causes of food spoilage and disease How bacteria grows and where; what it needs to thrive Sanitization vs. cleaning Effective methods of killing or retardation Bacteria growth	Positive rationals Use of numbers (without calculation) Counting Fundamental Operations (calculation) Addition and subtration algorithms Measurement: non-geometric Dry

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Listening	Instructions	Verbal instructions Comprehension Terminology
Reading	Instructions	Comprehension Terminology
Viewing	Seeing if area or object is clean	Detail and inference

(TASK STATEMENT) CONTROL RODENTS AND INSECTS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Screens, door and windo.. Insecticides Insecticide dispenser	Screen doors and windows Plug holes in walls - floor - ceilings Practice good sanitation Light all areas well Place dry storage off of floor Store open flour and sugar properly Dispense appropriate insecticides	Improper use of insecticides Using unsafe insecticides

DECISIONS	CUES	ERRORS
Determine form and type of insecticide Secure professional help services Determine steps necessary to insure control of rodents and insects	Visual evidence of presence Screening in need of repair Floor - ceiling - wall in need of repair	Uncovered food storage Improper dry storage Poorly lit area Lack of ventilization Use of dangerous insecticides Leave door open

(TASK STATEMENT) CONTROL RODENTS AND INSECTS

SCIENCE	MATH – NUMBER SYSTEMS
Contamination caused by rodents and insects Disease carriers Bacteriology (microorganisms) Causes of food spoilage and disease How bacteria grows and where; what it needs to thrive Sanitization vs. cleaning Effective methods of killing or retardation	

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Listening	Instructions	Verbal instructions Comprehension Terminology
Reading	Instructions	Comprehension Terminology
Viewing	Seeing if area or object is clean	Detail and inference

(TASK STATEMENT) HANDLE AND STORE SUPPLIES AND EQUIPMENT

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY - HAZARD
Wash basin Towel Soap Refrigerator Stock area Pallets Shelves Covered containers Freezer Tongs Handy wraps and tissues	Wash hand before handling food and ingredients Use tongs or handywrap for handling finished products Adjust temperature Adjust lighting Store - off floor Rotate stock - first in - first out Place all opened packages of flour, sugar, etc. in covered containers Heavy objects at lower levels	Contamination Rapid change in temperature Improper lifting

DECISIONS	CUES	ERRORS
Determine what type of storage Determine rotation system Determine time particular product can be held Determine best height for storage	Color, texture, smell of food Speed of freezing Thermometer on inside of door	Refreezing thawed foods Improper freezing Uncovered foods in refrigerator Improper ventilation (refrigerator - freezer) Improper rotation of stock Too long to freeze Breakdown of equipment (compressors)

(TASK STATEMENT) HANDLE AND STORE SUPPLIES AND EQUIPMENT

SCIENCE	MATH – NUMBER SYSTEMS
Effects of freezing on foods Dehydration Flash vs. slower rate Effects of ventilation Temperature control - moisture control Effect of temperature on bacteria growth Physics of heavy lifting Bacteriology (microorganisms) Causes of food spoilage and disease How bacteria grows and where; what it needs to thrive Sanitization versus cleaning Effective methods of killing or retardation	Positive rationals Use of numbers (without calculation) Counting, coordinate system, ordering, indexing Addition and subtraction algorithms Reduction of fractions Measurement: non-geometric Temperature Weight Dry Liquid

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Listening	Instructions	Verbal instructions Comprehension Terminology
Reading	Instructions	Comprehension Terminology
Viewing	Seeing if area or object is clean	Detail and inference

Duty B Preparing and Cooking Various Products

1 Prepare and bake yeast doughs
2 Prepare cookies, pie crust, french pastry
3 Prepare cakes and quick breads
4 Decorate cakes
5 Prepare icings and frostings
6 Prepare pudding and fillings

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(TASK STATEMENT) PREPARE AND BAKE YEAST DOUGHS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Scales and calibrated container Utensils—rolling pins, ladles, spoons, spatulas Mixers Oven Work bench Baking pans and racks Baking sheets or bun pans Screens Cutters Dough divider and powder Proof box Pretzel twister Dough trough Deep fat frier Pastry pump (doughnuts) Bread, pretzels (bread), doughnuts, sweet dough, Danish Formulae	Gather and weight ingredients Mix and prepare dough Ferment dough Sheet and scale dough, grease or use parchment paper Pan dough Proof dough Preheat oven Bake Cool	See appendix

DECISIONS	CUES	ERRORS
Determine when dough is properly fermented Determine when dough is properly proofed Determine when dough is baked Determine whether to grease pans or use parchment paper	Texture of dough Volume of dough Volume of dough Development of dough Color of baked product Costs	Dough not rising Insufficient volume of dough Crust wrong color Using parchment paper only once

(TASK STATEMENT) PREPARE AND BAKE YEAST DOUGHS

SCIENCE	MATH – NUMBER SYSTEMS
Heat loss - transfer from one object to another Effects of fermentation on volume production of gas increases volume Effects of leavening agent: expansion of gases; gases under pressure; trapped in dough Composition of flour (gluten): amount of gluten controls amount of moisture absorption Effects of heating and cooling on state of matter Different properities of each type of shortening: melting point; smoking point; room temperature form; chemical formula	Positive rationals Counting, coordinating system, ordering, indexing, coding Addition, subtraction, multiplication and division algorithms Reduction of fractions Finding a percent of a number and what percent one number is of another Ratio and proportion Measurement: non-geometric Temperature [Equipment and product] Weight [Ingredients] Liquid [Ingredients] Dry [Ingredients] Speed [Mixer] Recognize basic geometric figures

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Reading	Formula and instructions	Comprehension, instructions, terminology
Listening	Instructions	Terminology, word definition, concentration, comprehension
Viewing	Dough raw and baked	Detail and inference, color discrimination
Touching	Elasticity	Consistency, texture, discrimination
Smelling	Finished products	Properly baked, proper proportion

(TASK STATEMENT) PREPARE COOKIES, PIE CRUST, FRENCH PASTRY

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Scales, calibrated containers, utensils, mixers Ovens, work bench, baking pots and pans, racks Cookie dropper, cookie machine, pastry bag and tube Rolling pin, sheeter, stove, steam kettle, pie shell Machine, docker, formulae	Gather and weigh ingredients Mix and prepare dough Scale and portion dough Process Pan Preheat oven Bake Cool	See appendix

DECISIONS	CUES	ERRORS
Determine proper formula Determine when dough is properly mixed and developed Determine portion control - general shape Determine when properly baked	Texture Development, Texture, Consistency, Volume Symmetry Color	Slack dough Stiff dough, Poor texture, Poor volume Poor symmetry Lack of color Pies - overmixed dough - percent of shortening

(TASK STATEMENT) PREPARE COOKIES, PIE CRUST, FRENCH PASTRY

SCIENCE	MATH – NUMBER SYSTEMS
Heat loss - transfer from one object to another Effects of fermentation on volume production of gas increases volume Effects of leavening agents: expansion of gases; gases under pressure; trapped in dough Composition of flour (gluten): amount of gluten controls amount of moisture absorption Effects of heating and cooling on state of matter Different properities of each type of shortening: melting point; smoking point; room temperature form; chemical formula	Positive rationals Counting, coordinating system, ordering, indexing, coding Addition, subtraction, multiplication and division algorithms Reduction of fractions Finding a percent of a number and what percent one number is of another Ratio and proportion Measurement: non-geometric Temperature [Equipment and product] Weight [Ingredients] Liquid [Ingredients] Dry [Ingredients] Speed [Mixer] Recognize basic geometric figures

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Reading	Formula and instructions	Comprehension, instructions, terminology
Listening	Instruction	Terminology, word definition, concentration, comprehension
Viewing	Dough raw and baked	Detail and inference, color discrimination
Touching	Elasticity	Consistency, texture, discrimination
Smelling	Finished products	Properly baked, proper proportion

(TASK STATEMENT) PREPARE CAKES AND QUICK BREADS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Scales, mixers, utensils, droppers, divider, muffin pans, loaf pans, cake pans, sheeter, rolling pin, ovens, racks, sheet pans, dropping machine, icing pots, bench, fryer, hand dropper, freezer, retardar, pastry bag and tube, and formulae	Gather and weight ingredients Mix and prepare batter Scale or portion batter Place parchment paper on bottom of cake pan do not grease sides Preheat oven Bake	See appendix

DECISIONS	CUES	ERRORS
Determine proper formula Determine when properly baked Determine when dough is properly mixed Determine size of portions and containers to be used	Volume of cake Shrunken circumference or sloped sides Volume of cake Consistency of batter Specific gravity of batter Volume Smoothness	Volume too little or too much Greasing sides of cake pan too heavily Cake fallen Too stiff Too slack Improper mixing Too much heat or too little heat Too much or too little leavening Wrong color of bake Formula unbalanced

(TASK STATEMENT) PREPARE CAKES AND QUICK BREADS

SCIENCE	MATH – NUMBER SYSTEMS
Heat loss - transfer from one object to another Effects of fermentation on volume production of gas increases volume Effects of leavening agents: expansion of gases; gases under pressure; trapped in dough Composition of flour (gluten): amount of gluten controls amount of moisture absorption Effects of heating and cooling on state of matter Different properities of each type of shortening: melting point; smoking point; room temperature form; chemical formula	Positive rationals Counting, coordinating system, ordering, indexing, coding Addition, subtraction, multiplication and division algorithms Reduction of fractions Finding a percent of a number and what percent one number is of another Ratio and proportion Measurement: non-geometric Temperature [Equipment and product] Weight [Ingredients] Liquid [Ingredients] Dry [Ingredients] Speed [Mixer] Recognize basic geometric figures

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Reading	Formula and instructions	Comprehension, instructions, terminology
Listening	Instruction	Terminology, word definition, concentration comprehension
Viewing	Dough raw and baked	Detail and inference, color discrimination
Touching	Elasticity	Consistency, texture, discrimination
Smelling	Finished products	Properly baked, proper proportion

(TASK STATEMENT) DECORATE CAKES

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY -- HAZARD
Sheet pans Mixing bowls Mixer Spatula Icing knife Decorating tubes and bags Decorating nails Turn table Boards, cake and circles Doilies Parchment paper Formulae	Gather icing and tools Place in tubes and bags Prepare cake to be iced and place on board Color icing to desired colors Enrobe cakes Decorate cake Box cake	See appendix

DECISIONS	CUES	ERRORS
Determine proper icing Determine proper pastry bags and tubes Determine color and flavor Determine decorating style Determine time needed	Occasion - customer needs Flavor capability Size of packaging Time taken	Covering icing too thin or too thick Colors unesthetic appearance Time limit over reached

(TASK STATEMENT) DECORATE CAKES

SCIENCE	MATH – NUMBER SYSTEMS
Heat loss - transfer from one object to another Effects of fermentation on volume production of gas increases volume Effects of leavening agents: expansion of gases; gases under pressure; trapped in dough Composition of flour (gluten): amount of gluten controls amount of moisture absorption Effects of heating and cooling on state of matter Different properities of each type of shortening: melting point; smoking point; room temperature form; chemical formula	Positive rationals Counting, coordinating system, ordering, indexing, coding Addition, subtraction, multiplication and division algorithms Reduction of fractions Finding a percent of a number and what percent one number is of another Ratio and proportion Measurement: non-geometric Temperature [Equipment and product] Weight [Ingredients] Liquid [Ingredients] Dry [Ingredients] Speed [Mixer] Recognize basic geometric figures Symmetry

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Reading	Formula and instructions	Comprehension, instructions, terminology
Listening	Instruction	Terminology, word definition, concentration comprehension
Viewing	Dough raw and baked	Detail and inference, color discrimination
Touching	Elasticity	Consistency, texture, discrimination
Smelling	Finished products	Properly baked, proper proportion

(TASK STATEMENT) PREPARE ICINGS AND FROSTINGS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Scales and calibrated containers Utensils - spoons - ladles - spatula Mixers Work bench Icing pots Steam kettle or candy stove Formulae	Gather and weigh ingredients Mix and prepare ingredients according to instructions Enrobe cakes and baked foods as desired	See appendix

DECISIONS	CUES	ERRORS
Determine proper icing to use on what baked foods Determine proper consistency texture Determine best formula for usage Determine best shortening	Texture, flavor, consistency of product Color of product	Curdling Too thin Too thick Grainy Not properly emulsified Not properly homogenized Lumpy

(TASK STATEMENT) PREPARE ICINGS AND FROSTINGS

SCIENCE	MATH – NUMBER SYSTEMS
Heat loss - transfer from one object to another Effects of fermentation on volume production of gas increases volume Effects of leavening agents: expansion of gases; gases under pressure; trapped in dough Composition of flour (gluten): amount of gluten controls amount of moisture absorption Effects of heating and cooling on state of matter Different properities of each type of shortening: melting point, smoking point; room temperature form; chemical formula	Positivie rationals Counting, coordinating system, ordering, indexing, coding Addition, subtraction, multiplication and division algorithms Reducation of fractions Finding a percent of a number and what percent one number is of another Ratio and proportion Measurement: non-geometric Temperature [Equipment and product] Weight [Ingredients] Liquid[Ingredients] Dry [Ingredients] Speed [Mixer] Recognize basic geometric figures

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Reading	Formula and instructions	Comprehension, instructions, terminology
Listening	Instructions	Terminology, word definition, concentration comprehension
Viewing	Dough raw and baked	Detail and inference, color discrimination
Touching	Elasticity	Consistency, texture, discrimination
Smelling	Finished products	Properly baked, proper proportion

(TASK STATEMENT) PREPARE PUDDING AND FILLINGS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY -- HAZARD
Scales and calibrated containers Ladles - spoons - spatula - mixers - work bench Pots - pans - racks - baking sheets - pastry pumps Steam kettle - candy stove - refrigerators - freezer Sink - colonder - sieve - ingredient scoop - formulae	Gather ingredients Mix and/or cook ingredients Weigh and/or measure ingredients Cool Dispense	See appendix

DECISIONS	CUES	ERRORS
Determine formula Determine proper consistency Determine use Determine storage	Consistency Smoothness Color Flavor Usage	Too thick Too thin Separation Not properly emulsified Not proper homogenized Color wrong

(TASK STATEMENT) PREPARE PUDDING AND FILLINGS

SCIENCE	MATH – NUMBER SYSTEMS
Effects of thickening agents Effects of heat on consistency Heat loss - transfer from one object to another Effects of fermentation on volume production of gas increases volume Effects of leavening agents: expansion of gases; gases under pressure; trapped in dough Composition of flour (gluten): amount of gluten controls amount of moisture absorption Effects of eating and cooling on state of matter Different properities of each type of shortening: melting point; smoking point; room temperature form; chemical formula	Positive rationals Counting, coordinating system, ordering, indexing, coding Addition, subtraction, multiplication and division algorithms Reduction of fractions Finding a percent of a number and what percent one number is of another Ratio and proportion Measurement: non-geometric Temperature [Equipment and product] Weight [Ingredients] Liquid [Ingredients] Dry [Ingredients] Speed [Mixer] Recognize basic geometric figures

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Reading	Formula and instructions	Comprehension, instructions, terminology
Listening	Instruction	Terminology, word definition, concentration comprehension
Viewing	Dough raw and baked	Detail and inference, color discrimination
Touching	Elasticity	Consistency, texture, discrimination
Smelling	Finished products	Properly baked, proper proportion

Duty C Selecting Types of Ingredients

1 Select various flour for mixes
2 Select various types of shortening
3 Select types of leavening agents
4 Select various types of sweeteners

(TASK STATEMENT) SELECT VARIOUS FLOUR FOR MIXES

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY HAZARD
Flours Durum Strong flour Hard winter Hard spring Soft flour Whole wheat Bran Whole kernel Rye	Select Durum flour for macaroni products Select hard flour for bread, roles, sweet yeast products Select soft flour for cakes, pastries, cookies, pie crust Select flour for whole or cracked wheat products	See appendix

DECISIONS	CUES	ERRORS
Determine type of product being made	Characteristic of flour	Wrong flour Incorrect percentage of shortening

(TASK STATEMENT) SELECT VARIOUS FLOUR FOR MIXES

SCIENCE	MATH – NUMBER SYSTEMS
Water and glutenin and gliadin to form gluten - retention of gas produced by yeast Elasticity as produced in dough Effects of moisture absorption on doughs Structure of protein Effects of microorganisms	Positive rationals Counting, indexing Addition, subtraction, multiplication, division algorithms

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Verbal orders and instructions	Terminology, clarity, denotative/connotative words
Reading	Written orders and instructions	Comprehension, detail and inferences
Listening	Verbal order	
Writing	Order and recipes	Spelling, comprehension, note taking, logic
Touching	Test dough	Elasticity, consistency, texture

(TASK STATEMENT) SELECT VARIOUS TYPES OF SHORTENING

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Frying medium (all purpose) shortening Emulsified hydrogenated (solid) shortening All purpose hydrogenated shortening Icing shortening (hydrogenated - emulsified) Puff Paste (water or milk churned shortening) Margarine and butter Oils (vegetable shortening)	Select shortening for deep fryer Select shortening for cakes - cookies - sweet dough Select shortening for fillings and pudding Select shortening for general baking Select shortening for puff pastry - napoleons - stroodles - turnovers Select shortening for danish - pie crust Select shortening for pizzas and Italian bread	See appendix

DECISIONS	CUES	ERRORS
Decide what product is to be produced	Characteristics of shortening	Wrong shortening used

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(TASK STATEMENT) SELECT VARIOUS TYPES OF SHORTENINGS

SCIENCE	MATH – NUMBER SYSTEMS
Preparation and effects of hydrogenated shortening; emulsified shortening; liquified shortening Chemistry of poly-unsaturates Heating process: smoking point of shortenings Sources of animal or vegetable shortenings	Positive rationals Counting and indexing Addition, subtraction, multiplication and division algorithms Measurement: non-geometric Dry, weight

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Verbal orders and instructions	Terminology, clarity, denotative/connotative words
Reading	Written orders and instructions	Comprehension, detail and inferences
Listening	Verbal order	
Writing	Order and recipes	Spelling, comprehension, note taking, logic
Touching	Test dough	Elasticity, consistency, texture

(TASK STATEMENT) SELECT TYPES OF LEAVENING AGENTS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Yeast compressed Chemical leaveners (carbonates) Bicarbonate of soda Baking soda Ammonium carbonate	Determine type of recipe to be used Select proper shortening Add shortening in amount required	

DECISIONS	CUES	ERRORS
Decide type of product to be made	Characteristics of leavening agents	Wrong amount Poor quality product

(TASK STATEMENT) SELECT TYPES OF LEAVENING AGENTS

SCIENCE	MATH – NUMBER SYSTEMS
Principles of fermentation Sugar reaction Self-reacting versus reaction to leavening agent Chemical reaction of leavening agents Evaporation of water	Positive rationals Counting indexing Addition, subtraction, multiplication and division algorithms Weight measurements

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Verbal orders and instructions	Terminology, clarity, denotative/connotative words
Reading	Written orders and instructions	Comprehension, detail and inferences
Listening	Verbal order	
Writing	Order and recipes	Spelling, comprehension, note taking, logic
Touching	Test dough	Elasticity, consistency, texture

(TASK STATEMENT) SELECT VARIOUS TYPES OF SWEETENERS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Sugar Granulated Powered Pulverized Brown sugar Honey Molasses Corn sugar	Select sweetener for cake baking, icing, frosting filling, flavoring	See appendix

DECISIONS	CUES	ERRORS
Determine type of product to be made	Recipes - characteristics of sweeteners	Too sweet - poor consistency

(TASK STATEMENT) SELECT VARIOUS TYPES OF SWEETENERS

SCIENCE	MATH – NUMBER SYSTEMS
Difference between simple and complex sugars (invert) (Mono–versus–dissacharides) Process of dissolving sugar in liquids Solutions–suspension–colloids	Positive rationals Counting, indexing Addition, subtraction, multiplication and division algorithms Weight measurements

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Verbal orders and instructions	Terminology, clarity, denotative/connotative words
Reading	Written orders and instructions	Comprehension, detail and inferences
Listening	Verbal order	
Writing	Order and recipes	Spelling, comprehension, note taking, logic
Touching	Test dough	Elasticity, consistency, texture

Duty D Maintaining Inventory and Stock Control

1 Order supplies
2 Receive, store and disburse supplies and products

(TASK STATEMENT) ORDER SUPPLIES

TOOLS, EQUIPMENT, MATERIALS OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY HAZARD
Inventory sheets Specification cards Want list Purveyor list	Keep a want list Keep a special inventory Meet specifications as set by management Order as needed so as to have sufficient inventory at all times	

DECISIONS	CUES	ERRORS
Determine particular requirements Develop standards and specifications Determine amount of inventory	Finances Storage area Rate of usage	Insufficient records Lack of coordination between departments

(TASK STATEMENT) ORDER SUPPLIES

SCIENCE	MATH – NUMBER SYSTEMS
Effects of specific density differences in same ingredient and in finished products	Positive rationals Counting, ordering, indexing, coding Addition, subtraction, multiplication and division algorithms Reduction of fractions Finding percent of a number Ratio and proportion Rounding off decimals and whole numbers

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Giving orders	Terminology, clarity, denotative/connotative, words
Reading	Brochures and lists of products	Comprehension, information report, decription of product
Writing	Written order	Terminology, specifications
Listening	Taking verbal orders	Terminology, specifications

(TASK STATEMENT) RECEIVE, STORE AND DISBURSE SUPPLIES AND PRODUCTS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY
Inventory list Copy of purchase orders Delivery receipt Scales	Weigh or count incoming merchandise Check against order sheets Record delivery Short merchandise so oldest stock is used first Store in proper environment and lock Fill orders Check order Obtain receipt Adjust inventory	Heavy weights Falling objects Slippery floors Potential back injury or rupture

DECISIONS	CUES	ERRORS
Determine completeness of order received Determine type of storage Determine when to reorder so as not to run short Determine if all stock is accounted for	Item count Damage item Improper item shipped Container contents High unanticipated food cost High unanticipated use	Damage material Improper stacking Insufficient coordination Poor inventory controls Poor records Lack of security system

(TASK STATEMENT) RECEIVE, STORE AND DISBURSE SUPPLIES AND PRODUCTS

SCIENCE	MATH – NUMBER SYSTEMS
Effects of temperature, humidity and light on various fresh, frozen, dry and canned food products	Positive rationals Counting, ordering, indexing, and coding Addition, subtraction, multiplication and division algorithms Finding percent of a number Measurement: non-geometric Temperature Weight Liquid Dry

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Orders and instructions	Terminology, denotative/connotative words, comprehension
Reading	Written orders and instructions	Terminology, denotative/connotative words, comprehension
Writing	Write orders	Terminology, denotative/connotative words, comprehension
Listening	Given oral orders	Terminology, denotative/connotative words, comprehension, concentration
Viewing	Bills of lading, receipts, and invoices	Color discrimination, recognition of symbols
Touching	Grading condition of foods received	Texture, consistency, temperature, discrimination
Smelling	Checking condition of goods received	Fresh, spoiled, stale

Duty E Developing Merchandising and Salesmanship

1 Develop merchandising strategy

(TASK STATEMENT) DEVELOP MERCHANDISING STRATEGY

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY -- HAZARD
Paper Pencil Profit and loss statement	Survey market Population density, social-economic group, ethnic background, age of average patron Analyze products What makes it unique Quality, quantity, special decor, price, service Set-up merchandising program (be creative) Advertising Radio and television, direct mail, newspaper, satisfied customer, hand bills, Promotional Special occasion, holiday, seasonal, special prices, inpulse buying, suggestive selling	

DECISIONS	CUES	ERRORS
Determine customer wants and needs	Social-economic group Ethnic background Age of average patron Past records	Unable to satisfy customer
Determine a merchandising theme	The product Uniqueness	Piecemeal merchandise
Determine most efficient ways to merchandise	Past records Current budget Similar operation	Piecemeal merchandise Ineffectiveness Costs too much
Determine most efficient way to advertise	Past records Current budget Similar operations	Ineffectiveness Costs too much

(TASK STATEMENT) DEVELOP MERCHANDISING STRATEGY

SCIENCE	MATH – NUMBER SYSTEMS
Why people buy (wants versus needs) Impulse buying Suggestive selling Creating a need Creating an image (projection) Appeal to vanity, social emulation, self indulgence, instant gratification Halo effect	Positive rationals Counting, coding Addition, subtraction, multiplication, division algorithms Finding a percent of a number Ratio and proportion Read maps Basic logic Deductive and inductive reasoning Test for validity Proof Indirect Determine probability of sample events Survey market and advertising Representative sampling from population Measurement of central tendency Techniques of statistical analysis and inferences

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking		Terminology, appropriate diction, implying, enunciation, clarity of expression, persusasion and sales technique, denotative/ connotative words, logic, gestures, dress, facial and body features, poise, usage
Reading	Interpret market surveys	Comprehension, detail/inference, terminology, informational reports, recommendation reports, proposals
Writing	Preparing advertising materials	Description, business letters, diction, clarity, reports, classification
Listening	Interpreting verbal marketing information and customer needs and wants	Discriminate facts from non-facts, Recognize opinions, Concentration, Logic, Definition

Duty F Managing Operation

1 Plan overall operation
2 Organize procedures and processes
3 Direct operation

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(TASK STATEMENT) PLAN OVERALL OPERATION

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Profit and loss statement Advisors Similar operations Experience Operating statements Job analysis Pen Paper Stenographer	Determine layout and design and traffic patterns Determine equipment necessary Determine location Determine labor force Figure rate of return on investment Determine type of operation (style of service, products offered) Set up objectives	

DECISIONS	CUES	ERRORS
Determine volume needed, and profit needed Determine how much area necessary for each operation Determine volume and variety of products Determine what makes a good location Determine how much capital investment Determine how large a building Determine need for service and product	Past operations Similar operations Market conditions Population density – age Population socio-economic Professional advice Traffic patterns Loan rates Uniqueness of operation Uniqueness of product Competetion	Overestimation of product Overestimation of service Underestimation of costs Cost of borrowing money Unexpected rises in costs Insufficient facts Insufficient planning Under-capitalization Undesireable location Investment too great for expected return Overestimate volume

(TASK STATEMENT) PLAN OVERALL OPERATION

SCIENCE	MATH – NUMBER SYSTEMS
Decision Making Exhibit capacity to: ascertain personal qualities, foster trust, accurately reflect plant environments and job expectations (2) Maintain capacity to: foster confidentiality, cooperation, integrity, and to cope with conflict behavior (3) Maintain capacity to function effectively when encountering fast changing personal or situational variables (4) Exhibit qualities of self-confidence, self-control, self-reliance and adaptability Distribute personnel with regard to leadership qualities and experiences for optimum performance Exhibit capacity to ascertain best service for the particular party type requested Grant appropriate regard for customer's unique needs Maintain regard for differing views on maximum efficiency in achieving objectives Grant conscious attention to smoothly flowing teamwork Capacity to perceive, quickly integrate, and function well in the face of unexpected situational variables, maintain openmindedness and composure in far seemingly different, clashing values (verbal, behavior)	Positive rationals Use of Numbers (without calculation) Counting, indexing Fundamental Operations (Calculation) Addition, subtraction, multiplication, division algorithms Basic Arithmetic Skills and Concepts Finding a percent of a number and what percent one number is of another, Ratio and proportion, Guess and check method Measurement: non-geometric Money [Representative sampling] Basic Statistical Skills and Concepts Representative sampling from population, Measurement of central tendency via mean (average), median, standard deviation, Techniques of statistical analysis and statistical inference Basic Logic Deductive or Inductive

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Conferences, meetings, oral reports, written report	Terminology, Diction, Clarity of expression, Enunciation, Persuasion, Denotation/Connotation, Usage, Logic, Gestures, Dress, Poise
Reading	Conferences, meetings, oral reports, written report	Comprehension, Detail/Inference, Informational reports, Recommendation reports, Proposals
Writing	Conferences, meetings, oral reports, written report	Classification, Spelling and Penmanship, Informational reports, Recommendation reports, Business letters
Listening	Conferences, meetings, oral reports, written report	Comprehension, Discriminate facts from non-facts, Note taking
Viewing	Converences, meetings, oral reports, written report	Visual analysis, Memory, Describing

(TASK STATEMENT) ORGANIZE PRODEDURES

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY - HAZARD
Paper Pencil Profit and loss statement	Define authority and responsibility (get work done through others) Provide a system of controls Develop procedures for carrying out daily business and special problems Provide a continuing training and educating program for each level of employee	

DECISIONS	CUES	ERRORS
Determine organizational setup Determine how much control is necessary Determine variance allowance Determine nature of unexpected problems Determine value of training new employees Determine value of continuous training of old employees	Size and/or volume of business How essential the task Effects of bad performance on objectives How smoothly things run without top supervision Changes in methods Things become routine Performance failure Objectives falling short Low repeat business Dissatisfied employees	Give responsibility without authority Slipshod supervision – loose control No thinking ahead – "status quo" syndrome No indoctrination No clear goals or steps Poor employee relations Praise Achievement awards Older employees know-it-all, or cannot be upgraded now

(TASK STATEMENT) ORGANIZE PROCEDURES

SCIENCE	MATH -- NUMBER SYSTEMS
Exhibit capacity to ascertain personal qualities; Exhibit capacity to foster trust; Maintain capacity to foster trust, confidence, cooperation, integrity and to cope with conflict behavior; Exhibit qualities of self-confidence, self-control, self-reliance, self-respect and adaptability; Distribute personnel with regards to leadership qualities and experiences for optimum team performance; Grant conscious effort to smoothly flowing teamwork Maintain regard for differing views on maximum efficiency of the operations; Grant appropriate regards for customer's unique needs; Communicate pride in establishment; Exhibit capacity to ascertain best service for the particular party type requested	Positive rationals Use of Numbers (without calculation) Counting, indexing Fundamental Operations (Calculation) Addition, subtraction, multiplication, division algorithms Basic Arithmetic Skills and Concepts Finding a percent of a number and what percent one number is of another, Ratio and proportion, Guess and check method Measurement: non-geometric Money/Interest Basic Statistical Skills and Concepts Representative sampling from population, Measurement of central tendency via mean (average), median, standard deviation Basic Logic Deductive/Inductive

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	All levels	Terminology, Diction, Implying, Enunciation, Clarity of expression, Persuasion and sales technique, Denotation/Connotation, Logic, Gestures, Dress, Facial and body features, Poise, Usage
Reading	Interpreting market surveys	Comprehension, Detail/Inference, Terminology, Informational reports, Recommendation report, Proposals
Writing	Preparing advanced materials	Description, Business letters, Diction, Clarity of expression, Informational reports, Recommendation reports, Classification
Listening	Interpreting verbal marketing information and customer needs and wants	Discriminate facts from non-facts, Recognize opinions, Concentration, Logic, Definition

(TASK STATEMENT) DIRECT OPERATION

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Paper Pencil Profit and loss statement	Supervise employees Hiring, training, employee relations, job duties and responsibilities (analysis) Control systems – procedures for insuring that procedures are being carried out as prescribed Bookkeeping, records, personal observation, employee ratings Coordinate departments or area to insure a smooth running, efficient operation of the whole (example: order department, head baker, sales promotion) Evaluate proceedures – check to see that objectives are being reached	

DECISIONS	CUES	ERRORS
Determine what is necessary to obtain and keep good employees Determine how efficient and which control systems Determine when coordinating effort is necessary Determine if objectives are being reached Determine if business is growing and healthy: if not, determine what must be done – new product, improved service or product, increase types and scope of product, merchandise create market	Turnover No efficient record system, low quality product, high food costs, high labor costs, customer dissatisfaction How large operation Profit and loss statement, operations statement, customer surveys, employee suggestion box	No job descriptions, no indoctrination, no sense of belonging Subjective evaluation, non-factual, lack of written forms No adjustment of policies, no room for growth, diminishing demand for product or service, lack of controls, inefficient evaluation

(TASK STATEMENT) DIRECT OPERATION

SCIENCE	MATH – NUMBER SYSTEMS
Exhibit capacity to ascertain personal qualities (skills, knowledge, character, flexibility, learning capacity); Exhibit capacity to foster trust; Maintain capacity to foster trust, cooperation, integrity and to cope with conflict behavior; Maintain capacity to function effectively, when encountering fast changing, multiple, personal or situational variables; Distribute personnel with regard to leadership qualities and experiences for optimum team performance; Communicate pride in establishment, Show and describe facilities with appropriate speed and clarity; Grant appropriate regards for customer's unique needs; Capacity to perceive, quickly integrate and function well in the face of unexpected situational variables	Positive rationals Use of Numbers (without calculation) Counting, Coordinate system, Ordering, Indexing, Coding Fundamental Operations (Calculation) Addition, subtraction, multiplication, division algorithms Basic Arithmetic Skills and Concepts Finding a percent of a number and what percent one number is of of another, Ratio and proportion, Reduction of fractions Read and interpret tables, charts and graphs Maps Basic Logic Deductive/Inductive, Test for validity, Proof: indirect Basic Probability Skills and Concepts Determine probability of sample events Basic Statistical Skills and Concepts Survey market, representative sampling from population, Measurement of central tendency, Techniques of statistical analysis/inference

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	All levels	Terminology, Diction, Implying, Enunciation, Clarity of expression, Persuasion and sales technique, Denotation/Connotation, Logic, Gestures, Dress, Facial and body features, Poise, Usage
Reading	Interpreting market surveys	Comprehension, Detail/Inference, Terminology, Informational reports, Recommendation report, Proposals
Writing	Preparing advanced materials	Description, Business letters, Diction, Clarity of expression, Informational reports, Recommendation reports, Classification
Listening	Interpreting verbal marketing information and customer needs and wants	Discriminate facts from non-facts, Recognize opinions,Concentration, Logic, Definition

Duty G Developing Accounting and Bookkeeping Skills

1 Calculate ingredient cost and selling price
2 Control labor costs
3 Calculate accounts receivable and payable

(TASK STATEMENT) CALCULATE INGREDIENT COST AND SELLING PRICE

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY HAZARD
Paper Pencil Calculator	Determine bowl cost and five percent for miscellaneous Determine yield Determine portion cost Determine selling price Cut out waste: raw ingredients, finished products, spillage, improper cooking, bowl clean out	

DECISIONS	CUES	ERRORS
Determine size of portion Determine percetn mark up needed	Volume of business Type of customer Overhead Not realizing yield volume Rise in food cost Clean utensils and pots and pans	Not keeping record of current prices Negligent bowl cost determination Lack of portion control Improper scaling Overruns Spillage Improper bowl cleanout Waste (unfit products) Wrong ingredients Burned products or underdone

(TASK STATEMENT) CALCULATE INGREDIENT COST AND SELLING PRICE

SCIENCE	MATH – NUMBER SYSTEMS
Increase of volume due to rising (expansion of trapped gases) Action of formed trapped gases Effects of heat upon volume	Positive rationals Use of Numbers (without calculation) Counting, coding, indexing, ratio Fundamental Operations (Calculation) Addition, subtraction, multiplication, division algorithms Measurement: non-geometric Weight, liquid, dry Basic Arithmetic Skills and Concepts Reduction of fractions, Finding a percent of a number and what percent one number is of another, Ratio and proportion/Estimation, Rounding of decimals and whole numbers

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Discussion of cost and prices	Terminology, Clarity of expression, Logic
Reading	Instructions, substitutes, new formulae, determine new cost	Comprehension, Detail/Inference, Informational reports, New formulae proposals
Writing	Precise formulae and accompanying bowl cost, yield and selling price	Selling, Classification, Description, Informational reports
Listening	Recognize verbal reports or opinions prior to writing	Concentration, Comprehension, Detail/Inference, Informational reports, New formulae proposals

(TASK STATEMENT) CONTROL LABOR COSTS

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Pencil Paper Calculator	Simplify task Time – motion study Closeness of materials Work simplification Plan work schedule: task to keep employees occupied while cooking process is going on so production efficiency of employees is high Plan efficient organization of tasks and scheduling	Prolonged standing or bending causes physical fatigue and lowered employee efficiency
DECISIONS	**CUES**	**ERRORS**
Determine how task can be done more efficiently Determine length of preparation time and cooking time of each task Determine how to utilize employees most efficiently	High labor cost percentage Employees standing around Physical strain on employee	Improper scheduling Improper work areas: height, noise, light, standing, stooping Supplies not nearby Supplies not available Physical tiring conditions

(TASK STATEMENT) CONTROL LABOR COSTS

SCIENCE	MATH – NUMBER SYSTEMS
Conscious awareness of the need for a balance between tension and relaxation Conscious awareness of physical expressions to peak physical performance (work simplification study) Optimum positions and range of humans musculature for most efficient performance	Positive rationals Use of Numbers (without calculation) Counting, coordinate system Fundamental Operations (Calculation) Addition, subtraction, multiplication, division algorithms Measurement: non-geometric Time [Time motion study], speed Use of variables in formulae Basic Arithmetic Skills and Concepts Finding a percentage of a number and what percent a number is of another, Ratio and proportion [Efficiency ratios and proportions]

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Writing	Work schedule, motion studies, instructions	Classification, Description, Reports: Informational, Terminology, Denotation/Connotation
Speaking	Explaining, new work methods, instructions	Clarity of expression, Logic, Poise
Reading	Work studies and schedules, instructions	Comprehension, Detail/Inference, Recommendation reports
Listening	Verbal proposals	Recognize opinions

(TASK STATEMENT) CALCULATE ACCOUNTS RECEIVEABLE AND PAYABLE

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Bills (duplicates) Statements Receipts Check	Calculate accounts payable Purveyors – C.O.D. – weekly – monthly Utilities – monthly Rent or mortgage – monthly Calculate accounts received Unpaid customer obligations Rebates – discounts Reconcile accounts Check stubs, paid bills, unpaid bills, and cash sales	

DECISIONS	CUES	ERRORS
Determine method of payment Frequency – check or cash – receipts Determine automatic deduction from checking account Determine method of billing and collection Determine method of entering into books Determine method of balancing out accounts	Filing systems Bookkeeping methods	Lost receipts Not marking paid bills Lost bills Not obraining receipts on cash payments

(TASK STATEMENT) CALCULATE ACCOUNTS RECEIVABLE AND PAYABLE

SCIENCE	MATH – NUMBER SYSTEMS
	Positive rationals Use of Numbers (without calculation) Counting, coordinating system, indexing, coding Fundamental Operations (Calculation) Addition, subtraction, multiplication, division algorithms Basic Arithmetic Skills and Concepts Reduction of fractions, Finding a percent of a number and what percent one number is of another, Rounding off decimals and whole numbers

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	About an account	Diction, Enunciation, Clarity of expression, Persuasion, Logic, Poise
Writing	Preparing bill, statements, checks, receipts	Classification, Description, Business letters
Listening	About an account	Concentration, Logic, Comprehension, Detail/ Inference, Informational reports, Terminology
Reading	About an account or a bill of lading	Concentration, Logic, Comprehension, Detail/ Inference, Informational reports, Terminology

Duty H Operating Store

1 Operate cash register
2 Serve customer

(TASK STATEMENT) OPERATE CASH REGISTER

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Cash register Electric outlet Receipts (optional) Bill (optional)	Find total amount due Manual Machine Receive money from customer : place on register ledge Make change – to five cents – to nearest quarter – to dollar Hand change to customer with smile and thank you	Catch fingers in drawer Impale hand on spike Punctures Mangled or broken fingers
DECISIONS	**CUES**	**ERRORS**
Determine how to derive amount owed Determine how to arrive at change due Determine when to put money in till Determine how to ring up sales (coded key)	Number of items Amount involved Percentage of customers in given time Code system: pre-set register, key control	Placing money in till before transaction is completed Impersonal attitude toward customer Incorrect ring Incorrect change making

(TASK STATEMENT) OPERATE CASH REGISTER

SCIENCE	MATH – NUMBER SYSTEMS
Psychology of selling Making a guest feel important Principles of courtesy	Positive rationals Use of Numbers (without calculation) Counting and coding Fundamental Operations (Calculation) Addition, subtraction, multiplication, division algorithms Basic Arithmetic Skills and Concepts Reduction of fractions, Rounding off decimals and whole numbers

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Selling, money given	Concentration, Persuasion and sales technique
Listening	Verbal orders	Concentration, Terminology
Touching	Coins, condition of merchandise	Size and determination

(TASK STATEMENT) SERVE CUSTOMER

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Tongs Tissue Bags Boxes Smile String Tape Telephone Pencil Paper	Give proper greeting: courtesy – public relations Display knowledge of products and terminology Concentrate on number and type (telephone) Reback order to customer (telephone) Fill order courteously (person) Do not touch products with hands (tissues) Thank customer with smile Invite return business	Food contamination by improper storage or handling Paper cuts

DECISIONS	CUES	ERRORS
Determine how long customer can wait Determine exactly what a customer wants Determine at what poing a customer is unreasonable Determine a customer rotation system Determine customer satisfaction – wholesale, retail	Dissatisfied customer: grumpy, curt Is customer a "good " customer Equal treatment whether order by phone or in person	Lack of friendliness Letting a customer feel neglected Lack of knowledge of products and terminology Failure to reback phone orders Handling product with hands Improper food handling techniques

(TASK STATEMENT) SERVE CUSTOMER

SCIENCE	MATH – NUMBER SYSTEMS
Psychology of selling Making customer feel important Impulse buying Suggestive selling	Positive rationals Use of Numbers (without calculation) Counting, coding, ordering Fundamental Operations (Calculation) Addition, subtraction, multiplication, division algorithms Measurement: non-geometric Weight [Weigh cookies]

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Read back, customer	Terminology, Persuasion and sales technique, Dress, Facial and body features, Poise, Logic
Listening	Phone or personal order	Auditory discrimination, Verbal orders, Logic
Viewing	Lb., dozen, M	Recognition of abbreviations, symbols, codes

Duty I Observing Safety Rules and Regulations

1 Safety principles and laws in layout design
2 Obey safety procedures for installing and operating equipment

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(TASK STATEMENT) SAFETY PRINCIPLES AND LAWS IN LAYOUT DESIGN

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Check list: copy of federal, state, and local ordinances pertaining to bakery set up and operation	Door open outward, and recessed Handrails, signs, and lights at all steps Mark all exits and fire alarm systems Lighting standards: aisle space Ventilation – hood and exhaust fans Non-flammable materials Fire extinguishers and automatic sprinkling system Equipment – moveable installation Floor – tile, sloped, with drain Wall – easily cleaned (tile or epoxy) Sewer trap – grease Separate restroom facilities	Poor lighting in work areas Crowded aisle Grease build-up Fire Unserviced fire extinguisher and systems Unsafe connection Slippery or cluttered floor areas Easily cleaned walls, and ceilings (grease build-up) Fire – electric shock, gas inhalation, falls, slips, burns, scalding, temperature build-up, grease fire
DECISIONS	**CUES**	**ERRORS**
Amount of lighting Proper ventilation Materials used in kitchen Extinguishers and hood system Floor construction	Controlled by state, federal, and local laws and building code Projected volume	Not getting plans okayed by local department of health, fire department, local building inspectors, and the department of agriculture Inadequate space for necessary equipment Lack of sewer trap – inadequate sewer lines Inadequate electrical power Not allowing for expansion – overcrowding

(TASK STATEMENT) SAFETY PRINCIPLES AND LAWS IN LAYOUT AND DESIGN

SCIENCE	MATH – NUMBER SYSTEMS
Light - candles unit Effects of exhaust fan on air movement, temperature and grease build-up Effects of different chemicals on different types of fires Peculiar properties of grease build-up	Positive rationals Use of Numbers (without calculation) Counting, coordinate, ordering, indexing Fundamental Operations (Calculation) Addition, subtraction, multiplication, division algorithms Measurement: non-geometric Weight Use of variables in formulae Basic Arithmetic Skills and Concepts Reduction of fractions, Finding a percent of a number and what percent one number is of another Area relationships

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Discussion with various experts and officials in layout and design	Terminology, Diction, Implying, Enunciation, Clarity of expression, Denotation/Connotation, Logic
Reading	Rules, laws, regulations, proposals, information sources	Comprehension, Detail/Inference, Informational reports, recommendation reports, Proposals, Definition, Instructions
Writing	Instructions, notes, set-up layout	Classification reports
Listening	Oral communication on above subjects	Comprehension, concentration, Logic, Note taking

(TASK STATEMENT) OBEY SAFETY PROCEEDURES FOR INSTALLING AND OPERATING EQUIPMENT

TOOLS, EQUIPMENT, MATERIALS, OBJECTS ACTED UPON	PERFORMANCE KNOWLEDGE	SAFETY – HAZARD
Copy of federal, state, and local ordinances pertaining to equipment standards and installation Copy of manufacturer's instructions and operating proceedures	Choose moveable whenever possible Install flexible pipe attachments Place small equipment on stainless steel stands Vent equipment Ground equipment Adjust aisle space Follow manufacturer's instructions and safety precautions Use all safety parts and mechanisms and guards Periodically check wiring and gas connections Use equipment only for intended uses	Sharp blades and cutters Unserviced extinguishers and disconnected systems Carelessness Disregarding instructions or safety precautions Not replacing safe guards on merchandise Not keeping equipment in good repair: bare wiring, gas leaks, water leaks, grease build-up, insufficient hood and exhaust system Crowded Using hands on mechanical feed machines Wet hands, or standing in water and using electric equipment
DECISIONS	**CUES**	**ERRORS**
Determine whether equipment is moveable or not Determine if adequately hooded Determine if grouping of equipment is as to minimize size of hood or more than one fan Determine what is safe operation Determine what can safely be used for purpose other than intended Determine a check system for wires and connections (gas – electric)	Size and weight Dissipation of odors, smoke and heat Manufacturer's instructions Water present Gaseous smell Bare wiring	Non-moveable equipment Rigid attachments Ungrounded electrical equipment Unvented cooking equipment Not enough aisle space Not following instructions Removing safety features

(TASK STATEMENT) OBEY SAFETY PROCEDURES FOR INSTALLING AND OPERATING EQUIPMENT

SCIENCE	MATH – NUMBER SYSTEMS
Characteristics of commercial gas (inflamable, odor) Characteristics of electricity in regards to water Basic electrical knowledge (bare wires, fuses), grounding, resets, 3 phase - 110 - 220 Effects of rapid air movement on temperature and grease build-up Effects of water on hot grease	Positive rationals Fundamental Operations (Calculation) Addition, subtraction, multiplication, division algorithms Use of Numbers (without calculation) Counting Measurement: non-geometric Weight, liquid, dry, speed, temperature Basic Arithmetic Skills and Concepts Ratio and proportion, Knowledge of symmetry

COMMUNICATIONS

PERFORMANCE MODES	EXAMPLES	SKILLS/CONCEPTS
Speaking	Oral instructions, reports on installation and operation of equipment	Terminology, Implying, Clarity of expression, Denotation/Connotation, Logic
Reading	Rules, laws, regulations, informational sources, proposals	Comprehension, Detail/Inference, Information reports, Recommendation reports
Writing	Instructions, notes, set-up equipment	Definition, Instructions, Classification reports
Listening	Oral information, whether machine is operating satisfactorily	Comprehension, Concentration, Logic, Note taking, Noise discrimination
Viewing	Place of equipment in total	Visual analysis, Describing
Smelling	Kitchen, motor - heat product	Working properly

APPENDIX

SAFETY–HAZARD

SAFETY:	HAZARD:
Lift heavy weights properly	Gas leaks
Unplug equipment to clean	Fire
Use hot pads to handle pans and equipment	Hot ovens and pans and equipment
Clean floor immediately	Heavy lifting
Keep working area clean and uncluttered	Open flame
Keep sharp objects in proper places	Spills and slips
Be sure all safety equipment is in place	High humidity and heat
Dry hands before using equipment	Live steam
Maintain proper fire extinguishers at proper areas	Sharp knives, blades, edges
Observe all safety rules in operating equipment	Electrically operated machines
	Hands and fingers–in mixers, grinders, slicers

GLOSSARY

Adding - The process of increasing

Bacteria - Numerous microscopic organisms, various species which are concerned in fermentation and spoilage

Bag out - To press product out of a conical canvas or plastic bag into the desired shapes and forms and onto baking pans

Bake - To cook by dry heat in a closed place, as an oven

Bakery - Baker's shop or place where goods are made and/or sold

Bowl cost - Cost of ingredients in a specific formula

Bran - Skin or outer covering of the wheat berry; removed during milling

Bleeding - Term applied to dough that has been cut and left unsealed thus permitting the escape of air and gas

Blend - A mixture of two or more flavorings or grades of flour

Durum - A type of hard wheat flour used in making of macaroni products

Emulsify - To combine ingredients such as water and fat

Enrobe - Completely cover (top and sides) a baked product with icing or frosting

Fermentation - A chemical reaction of the ingredients causing the forming of a gas (CO_2) which causes dough to expand

Formula - In baking, a recipe giving ingredients, amounts to be used, and method of combining them

Gluten - A protein that turns into a rubbery elastic substance when water is added to flour; it is this substance that holds the gas within

Graham - Coarse whole wheat flour

Invert sugar - A simple sugar; combination of dextrose and levulose

Leavening - Raising or lightening by air-steam or gas (CO_2)

Molding (Moulding) - The act of forming a loaf of bread

Proof - The last stage of fermentation which allows the dough to raise under controlled heat and humidity (proof box)

Portion - Size or weight of a unit or serving

Pumpernickle - Coarse rye flour

Punch - Looping dough over itself after reaching the proper fermentation, forcing the gas out of the dough

Retarder - Refrigerator

Rye - Type of grain that produces a flour with a distinctive taste but no gluten and must be blended with wheat to make a bread

Strong wheat flour (hard) - Used in baking bread-rolls and special yeast products

Soft wheat flour - Used in baking more delicate products such as cakes, pastries and cookies

Scaling - Portioning by weight or volume

Texture - Interior grain of a product; the feeling of a substance under the fingers

Whip - Aerate by beating to a froth

Whole wheat - Flour made from whole berry

Work (knead) - Knead into a mass or develop dough by added mixing

Yield - The number of finished portions derived from raw ingredients